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The synthesis of tetracarbonyl derivatives of thiacalix[4]arene in different conformations and their complexation properties towards alkali metal ions

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Abstract

The three conformations of 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetrakis[(benzoyl)methoxy]-2,8,14, 20-tetrathiacalix[4]arene 1: cone, partial cone and 1,3-alternate, were prepared by the treatment of 5,11,17,23-tetra-tert-butyl-2,8,14,20-tetrathiacalix[4]arene-25,26,27,28- tetraol (TCA) with α-bromo acetophenone in the presence of appropriate alkali carbonate M2CO3 (M=Na, K, Cs) as base catalyst in acetonitrile. Structure of the conformers were established by 1H NMR, 1H-1H COSY, 1D NOE, 2D ROESY and X-ray experiments. The alkali cation binding selectivity of the obtained macrocycles was investigated by the ion-pair extraction method.

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Keywords

Conformations, Extraction, Synthesis, Thiacalix[4]arenes